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10/559,704	12/07/2005	Taisuke Hirooka	60303.55/ok	1845

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EXAMINER	
GARCIA, CARLOS E	

ART UNIT	PAPER NUMBER
2627	

NOTIFICATION DATE	DELIVERY MODE
05/27/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/559,704	HIROOKA ET AL.	
	Examiner	Art Unit	
	CARLOS E. GARCIA	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-39 and 44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23,27-39,44* is/are rejected.

7)☒ Claim(s) *24-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application.
6) ☐ Other: _____.

FINAL REJECTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 23, 32-39 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art (hereinafter AAPA) in view of Hirooka (US 2003/0036025; hereinafter Hirooka '025).

Re claims 23 and 33: AAPA discloses a thin-film magnetic head substrate (see pages 2-5; Fig.7) comprising:

a ceramic base 12 with a principal surface (such as the right surface facing layer 13; and

an undercoat film 13, which is made of an aluminum oxide and which covers the principal surface of the ceramic base (page 4, para.0007), an electrical/magnetic transducer 16 being provided on the undercoat film; and

the ceramic base is a single monolithic layer arranged to be the bottom-most layer (as shown in Fig.7 if turned on its side) of the thin-film magnetic head substrate.

However, AAPA fails to disclose or fairly suggest wherein the substrate further includes an intermediate layer between the principal surface of the ceramic base and the undercoat film; the intermediate layer is made of a material other than the aluminum

oxide, as recited in claim 23; or wherein the intermediate layer is made of a metal film or a Si film, as recited in claim 33.

Hirooka '025 teaches a technique of recording different identifiers as used on thin-film magnetic heads (see abs; para.0004-0009). Furthermore, Hirooka '025 teaches the process of recording identifiers on an Al_2O_3-TiC type ceramic wafer 60 by placing a thin film 65 of metal material on a top surface of the ceramic layer 60 (para.0105-0107; Fig.8A-8D). The thin metal film 65 is patterned to a desired identifying mark, using the process illustrated in Fig.8A-8D. Additionally, Hirooka '025 suggests a method of placing identifier on multiple ceramic wafers (para.0086).

Therefore, a person of ordinary skill in the art would have recognized that applying the known technique of recording an identifier made of a metallic film as taught by Hirooka '025 and placing such identifier film on a surface of the ceramic layer of the magnetic thin film substrate of the AAPA for the purpose identifying the slider, would have yielded predictable results and would provided a way to identify the slider.

However, AAPA as modified by Hirooka '025 fails to disclose or fairly suggest the intermediate layer has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film.

Furthermore, a person of ordinary skill in the art would have had good reason to pursue the known options of placing the intermediate layer (metal film for identifier mark) on the substrate face as taught by Hirooka '025, nearest the transducer films before placing the undercoat layer as disclosed by AAPA.

Re claims 32 and 35: AAPA as modified by Hirooka '025 discloses the claimed invention except for wherein the intermediate layer has a thickness of 1 nm to 1 μm, as recited in claim 32 and wherein the undercoat film has a thickness of 10 nm to 1 μm, as recited in claim 35.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the thicknesses of each layer for the purpose of changed the conductive and/or magnetic characteristics of each layer, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Re claims 34 and 36: AAPA as modified by Hirooka '025 discloses the claimed invention except for wherein the intermediate layer is made of a material selected from the group consisting of Cu, alloys including Cu, Cr, alloys including Cr, and Si, as recited in claim 34; or wherein the ceramic base is made of an alumina-based ceramic material including 24 mol % to 75 mol % of α-Al_2O_3 and at most 2 mol % of an additive, as recited in claim 36.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the substrate material composition of either intermediate or substrate layers for the purpose of modifying the conductive properties of the thin film substrate, since it has been held to be within the general skill of a worker in the art to

select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416 (CCPA 1960).

Re claim 37: AAPA as modified by Hirooka '025 further discloses wherein the ceramic base further includes a carbide or nitride carbonate of a metal (Al_2O_3-TiC).

Re claim 38: AAPA further discloses the thin-film magnetic head slider (as shown in Fig.7) comprising: the thin-film magnetic head substrate of claim 23; and the electrical/magnetic transducer, which is provided on the undercoat film of the thin-film magnetic head substrate (as discussed above regarding claim 23).

Re claim 39: AAPA further discloses a hard disk drive comprising the thin-film magnetic head slider of claim 38 (para.0004 of AAPA).

Re claim 44: AAPA discloses a method of making a thin-film magnetic head slider, the method comprising the steps of:

preparing the thin-film magnetic head substrate of claim 23 (as discussed above for claim 23); and

fabricating the electrical/magnetic transducer on the undercoat film (as shown in Fig.7).

3. Claims 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Hirooka '025 further in view of Hirooka (JP 2004-127442; hereinafter Hirooka '442). The teachings of AAPA as modified by Hirooka '025 have been discussed previously.

Re claims 27-31: AAPA as modified by Hirooka '025 discloses the claimed invention except for wherein a portion of the intermediate layer makes an alignment mark for use in positional alignment, as recited in claim 27; wherein a portion of the intermediate layer makes a pattern representing identification information, as recited in claim 28; wherein the identification information includes information about the identity of the ceramic base, as recited in claim 29; wherein the pattern representing the identification information has been recorded on a plurality of areas of the principal surface of the ceramic base, mutually different pieces of the information being distributed to the respective areas, as recited in claim 30; or wherein the areas are arranged so as to form multiple different thin-film magnetic heads when the substrate is divided, as recited in claim 31.

The prior art of Hirooka '442 also teaches the known technique of placing a identification information on a surface of the substrate layer of a slider or multiple sliders during manufacturing (para.0049-0055). Furthermore, Hirooka '442 teaches that the substrate can include an alignment mark (para.0076-0077) on the slider or the identification information is unique to each substrate and that such information can be placed on multiple slider bodies during manfacturing (Fig.1-5) (see para.0020-0031), as recited in claims 27-31.

Therefore, a person of ordinary skill in the art would have recognized that applying the known technique of using the alignment mark or identification information

pattern for slider substrates layers, either on the substrate principal layer or other layers placed on the substrate, for the purpose of aligning the slider and providing identification data for the slider would have yielded predictable results and would have eased the manufacturing process of the slider substrates.

Allowable Subject Matter

4. Claims 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

In re claim 24: AAPA as modified by Hirooka '025 fails to show wherein the intermediate layer has an opening where the electrical/magnetic transducer is not located.

Response to Arguments

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARLOS E. GARCIA whose telephone number is (571)270-1354. The examiner can normally be reached on M-Th 9am-5pm F 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. E. G./
Examiner, Art Unit 2627
5/21/2010

/William J. Klimowicz/
Primary Examiner, Art Unit 2627